ASSESSING THE ECONOMIC IMPACT OF STATE PARKS LOCATED NEAR URBAN AREAS IN NEW YORK AND THE EFFECT OF THESE IMPACTS ON THE BUDGET ALLOCATION PROCESS

by

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INTRODUCTION

State parks have many types of values to society, most of which are extremely difficult to estimate precisely. These values are sometimes placed in two categories: (1) those which accrue to the park user via the park experience, and (2) those which benefit the economy of the neighborhood, region, state, or larger area. Examples of the first type include recreational, cultural, scientific, and educational values, including anticipation, participation, recollection and vicarious stages as segments of demand. Examples of the second type are park employment, economic impacts of spending by park visitors as well as park construction, maintenance, and operations expenditures, and the incremental value of property that is positively affected by being located in the proximity of the park, including sales and property tax effects.

Regardless of the difficulty of deriving estimates of state park values, such estimates are badly needed. The decade of the 1980s has been one of serious attempts to curtail government spending. Government cutbacks in funding seriously threaten the maintenance and operation of existing areas. Reduced funds for these purposes are resulting in shorter operating seasons for some facilities, and for deferred upkeep in others, the cumulative result of which is a decrease in the quality of the experience for the visitor.

It is hypothesized that parks and other urban recreation areas rarely command an image of necessity by governmental appropriators and as a result, their budgets are among the more vulnerable of services provided by the state. It has been effectively argued that parks are given such comparatively low importance ratings because the total array of park values is not fully understood.

This study was undertaken to document the tangible values which benefit the economy of the areas surrounding these urban or suburban parks. Specific objectives of the study include:

1. To demonstrate the magnitude of visitor expenditures at a state park and the secondary impact of those expenditures on the economy of the region.
2. To demonstrate the magnitude of state expenditures associated with operating and maintaining a state park, and the secondary impact of those expenditures on the economy of the region in which the park is located.
3. To demonstrate the degree to which residential property values and property tax collections are affected as a result of their proximity to state parks.
4. To investigate the budget appropriations process in relation to the use of economic values information, which would prove useful in the justification of budgets for providing urban forest recreation.

STUDY AREAS

Four state parks in New York were chosen as study sites based on their diversity of location throughout the state, nearness to urban centers, clientele, and activities offered. The location of these state parks--Cumberland Bay, Saratoga Spa, Green Lakes, and Watkins Glen--is shown in Figure 1.

BACKGROUND

Very few comprehensive studies of the economic values of state parks are available. Probably the most comprehensive attempt to estimate such values was

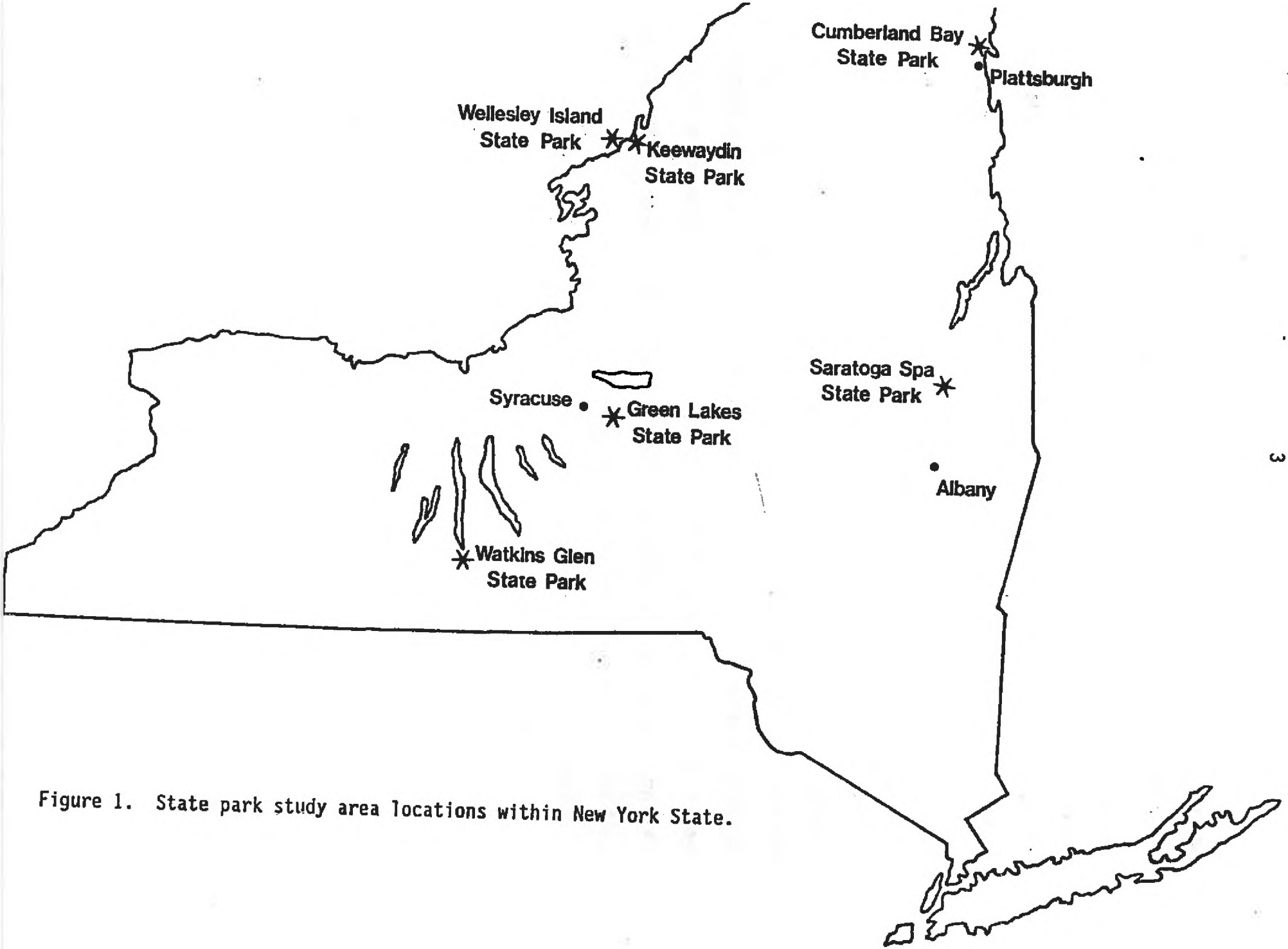

Figure 1. State park study area locations within New York State.

undertaken by the Kentucky state parks system (Cohee et al. 1976). From six Kentucky state resort and two state recreational parks, the consultants estimated the amount of trade with businesses of the state that resulted from visitor expenditures and park operations. Local government expenses connected with operating these parks were also estimated, as were agricultural and other product values that could be expected to be produced, had the parks remained in private ownership.

Dean et al. (1978) investigated the local economic impacts of five Tennessee state parks. Their analysis indicated that slightly less than one outside job per 10 park jobs is created from secondary effects of direct park spending, and that about one outside job per six park jobs is created from secondary effects of visitor expenditures. The greatest off-site employment impacts were related to parks having enough facilities to attract nonlocal visitors, yet not sufficiently developed that most retail items of interest to visitors could be purchased within the park.

Finally, a publication by the Canadian Outdoor Recreation Research Committee (1975) for the Federal/Provincial Parks Conference examined the literature related to estimating economic impacts related to parks. Techniques for measuring primary benefits to the user, and secondary impacts were reviewed. A framework for estimating secondary impacts at Ontario provincial parks was established. No primary research was undertaken in this effort, however.

METHODS

Visitor Expenditures

Previous Cornell research has shown that obtaining estimates of visitor expenditures to any recreation destination is straightforward, but must be done

by rigorous procedures if one expects to arrive at estimates that approximate actual visitor expenditures. These careful procedures involve three components:

1. Surveying visitors soon after they have completed the recreation experience. On-site interviews are undesirable in this regard because visitors may decide to stay in the area an additional day, or they may make unplanned purchases in the area before leaving. A mail survey, delivered at the resident's home within a few days of the visit allows the resident to report on all trip-related expenditures with minimal memory recall difficulties, given (2) below.
2. Facilitating memory recall by using detailed expenditure categories. Major purchases such as food, lodging, and fuel will likely be remembered by the recent park visitor with little prompting. However, small purchases such as souvenirs, boat launching fees, etc., the sum of which in some cases totals one-third or more of all expenditures, are easily forgotten. The use of detailed expenditure categories in the survey minimizes this problem.
3. Minimizing nonresponse bias. Visitors who quickly pass through the park and the region tend to feel that the survey is less pertinent to them, and it is more difficult to get them to respond. Failure to obtain their response results in mean expenditure estimates which are upwardly biased and which, when expanded, yield overestimates of actual aggregate expenditures. Especially in the case of mail surveys, it is important to use follow-up procedures to obtain as high a response rate as possible, thereby minimizing nonresponse bias (Brown and Wilkins 1978).

Sample Selection and Procedures

Separate samples of approximately 200 names were obtained for day users and campers at each state park. Names and addresses were requested from a sample of day users for the survey; campers were systematically selected from registration cards containing their names and addresses. The time frame for sample selection was August 15, 1984 through September 3, 1984. The study assumes the characteristics and expenditures of visitors during this two-week period to be representative of visitors for the entire Memorial Day to Labor Day period. The impact of visitor expenditures at other times of the year was not incorporated into the study.

Mail questionnaires and cover letters were sent to the initial sample of campers on September 18, 1984. A reminder letter was sent to nonrespondents on September 27, 1984. A final reminder letter with a second copy of the questionnaire was sent to nonrespondents on October 9, 1984. A copy of the questionnaire can be found in Appendix A. Follow-up mailings for Cumberland Bay State Park visitors were delayed for a few days to allow for the mostly Canadian visitors to respond using the slower Canadian mail system.

At Watkins Glen State Park, a portion of the day-use visitors sampled had actually camped at the state park and thus were eliminated from analysis where day-use visitors were compared with campers. Also, additional questions on the Watkins Glen survey permitted an exploratory analysis of trip planning and travel literature use.

Park Expenditures

Park expenditures for fiscal 1984-1985 were obtained from staff of the various state parks. These expenditures were divided into labor and other appropriate categories that would facilitate the estimation of the secondary spending impacts.

Secondary Impacts of Park-Related Expenditures

A portion of the expenditures of park visitors in the area surrounding the park is used by owners of retail businesses to pay workers in motels, restaurants, and shops, to purchase locally grown agricultural products, and to purchase other goods and services from the region. The respending of these initial expenditures, which contributes additional income and employment to firms and individuals in the region, is referred to as secondary effects or secondary impacts.

For many areas of the United States, secondary impacts of park expenditures or any other expenditures would not be known because it is unlikely that an input-output analysis would have been conducted. Input-output analysis (e.g., Yan 1969) provides a quantitative understanding of which economic sectors every other sector purchases goods and services from, and the degree to which these purchases are from firms inside versus outside the region. Input-output studies are typically very expensive in terms of time and labor if primary data are collected. They require a high degree of cooperation from firms in providing data to be valid, and they remain valid only so long as there are no major changes in the purchasing patterns within the region of study. Therefore, indirect nonsurvey techniques for estimating input-output (I-O) relationships based on interindustry modeling at the national level are often used. IMPLAN, a computer assisted I-O Model developed by the U.S. Forest Service (Alward and Palmer 1981), was used in this study to estimate the regional I-O models corresponding to each park location.

Parks and Property Values

The effect of state parks on surrounding residential property values was examined for six communities in New York, two of which were undertaken in an

earlier pilot effort. The findings from this portion of the study are contained in a paper entitled "State parks and residential property values in New York" in Appendix B.

Budget Allocation Process

The base of this information gathering was the responses of six regional state park directors and state-level staff in Albany (i.e., legislative committees, such as Senate Finance and Assembly Ways and Means; the Governor's budget office; and the Department of Parks and Recreation). In addition to budget staff, staff in program evaluation and development were interviewed. They were asked which of the measures used in this study (i.e., visitor expenditures, park expenditures, property value differences) were available now and if they were valuable in the budget process as seen from their point of view. Likewise, similar questions were asked about simple capacity and use changes and whether these data were more or less important in the formal or the informal budget information system.

RESULTS

Park Visitor Surveys

The number of parties mailed surveys at each park by visitor type and the response rates are shown in Table 1. The useable response rate of deliverable questionnaires ranged from 65% to 89%. Because of the high rate of response, nonresponse bias was not investigated.

Profile of Park Visitors

In 1984, summer attendance (June through September) at the four parks surveyed was estimated to include almost 150,000 camper days and over 1.5 million day-use visitor days. Table 2 outlines the estimates (provided by the

Table 1. Response Rate to Surveys Mailed to Park Visitors by Park and Visitor Type.

Park Visitor Type	Surveys Mailed (1)	Surveys Delivered (2)	Usable Surveys Returned (3)	Percent Response (3)/(2)
Cumberland Bay	320	294	227	77.2
Day Use	119	111	72	64.9
Campers	201	183	155	84.7
Green Lakes	402	395	317	80.3
Day Use	193	191	161	84.3
Campers	209	204	156	76.5
Saratoga Spa (Day Use Only)	245	235	175	74.5
Watkins Glen	299	298	266	89.3
Day Use	99	99	88	88.9
Campers	200	199	178	89.4

Table 2. 1984 Summer Attendance (June-September) By Visitor Type For Each Park.

Park	Summer Attendance	
	Camper Days	Day-Use Visitor Days
Cumberland Bay	49,421	96,338
Green Lakes	62,700	664,519
Saratoga Spa	-----	133,741
Watkins Glen	34,455	645,077

NYS Office of Parks, Recreation and Historic Preservation) of camper days and day-use visitor days at each park.

Approximately 90% of visitors at both Green Lakes Park and Cumberland Bay Park listed the park or the area surrounding the park as their trip's primary destination (Table 3). At Saratoga Spa, which is only open for day use, almost all of the visitors listed the park as their primary destination (89%). Just over half (57%) of visitors to Watkins Glen listed the park as their primary destination.

Watkins Glen visitors had the greatest mean number of days away from home (6 days), but a lower number of days at the park (3 days) than visitors to Green Lakes or Cumberland Bay (Table 4). Additionally, Watkins Glen visitors spent on the average 1 day in other parts of the Finger Lakes region. Saratoga Spa, which is only open for day use, had a mean number of days at the park and away from home of 1 day. At Cumberland Bay and Green Lakes, visitors spent on the average 6 days away from home and 4 days at the park.

The mean family or group size for all visitors ranged from 3.9 to 5.2. A major exception was found at Saratoga Spa where the mean group size was 36.0. This large mean was due to many large family reunions and group gatherings. About one-third of all visitors to all parks were under 18 years of age, one-third were 18 to 35, one-fifth were 36 to 55, and about one-tenth were 56 years of age or older. Some differences in age distribution between parks and between campers and day-users are illustrated in Table 5.

Between 84% and 95% of visitors at Cumberland Bay, Green Lakes and Saratoga Spa were attracted to the park because of the recreational opportunities available at the park, 47% to 73% for the relaxing atmosphere and scenic beauty, and 28% to 60% for the convenient location (Table 6). Of those who indicated they were attracted by recreational opportunities at Cumberland Bay,

Table 3. Trip Destination of Park Visitors.

	Visitor Type		
	Campers	Day Users	Totals
	(Percent)		
Cumberland Bay			
Park	52	56	53
Lake Champlain Area	34	38	36
Other Destination	14	6	11
	100	100	100
Green Lakes			
Park	63	90	77
Syracuse Area	25	8	16
Other Destination	12	2	7
	100	100	100
Saratoga Spa			
Park	---	89	89
Saratoga Area	---	9	9
Other Destination	---	2	2
		100	100
Watkins Glen			
Park	36	16	31
Watkins Glen Area	27	18	26
Finger Lakes Area	13	32	17
Other Destination	24	34	26
	100	100	100

Table 4. Mean Days Trip Duration of Park Visitors.

	Visitor Type		
	Campers	Day Users	Total
Cumberland Bay			
Days Away From Home	6.5	4.3	5.8
Days at Park	4.8	3.7	4.5
Green Lakes			
Days Away From Home	7.6	4.8	6.2
Days at Park	4.1	4.0	4.1
Saratoga Spa			
Days Away From Home	---	1.2	1.2
Days at Park	---	1.1	1.1
Watkins Glen			
Days Away From Home	6.5	5.0	6.0
Days in Finger Lakes Area	3.5	3.2	3.4
Days at Park	2.8	1.2	2.6

Table 5. Percent in Each Age Grouping For Visitors at Each Park by Type of Visitor.

	Age			
	<18 years	18-35	36-55	>55
Cumberland Bay				
Campers	28.8	39.6	23.5	8.1
Day Users	24.9	30.9	14.8	29.4
Totals	27.4	36.4	20.3	15.9
Green Lakes				
Campers	30.1	36.2	22.5	11.3
Day Users	38.0	38.5	15.8	7.6
Totals	34.3	37.4	18.9	9.3
Saratoga Spa				
Day Users Only	22.2	37.8	27.1	12.9
Watkins Glen				
Campers	35.5	36.3	22.1	6.1
Day Users	42.1	8.7	36.3	13.1
Totals	36.8	29.6	25.8	7.8

Table 6. Primary Attractions For Visitors at 3 of the 4 State Parks Examined.

	State Parks		
	Cumberland Bay	Green Lakes	Saratoga Spa
	Percent		
Primary Attractions			
Relaxing/Scenic Beauty	64.2	72.6	46.8
Convenience	43.8	60.4	27.6
Recreational Opportunities	85.9	83.6	94.8
Swimming	85.6	83.0	41.2
Picnicking	54.9	--	86.1
Hiking	--	47.2	--
Boating	--	27.2	--
Fishing	3.6	19.6	1.8
Golf	--	19.2	13.9
Biking	--	15.5	--
Saratoga Performing Arts Center	--	--	17.0
Tennis	--	--	1.2

86% specified swimming, 55% specified picnicking, and 4% specified fishing. Of those who indicated they were attracted by recreational opportunities at Green Lakes, the major opportunities specified included swimming by 83%, hiking by 47%, and boating by 27%. At Saratoga Spa picnicking was the most often specified recreational opportunity (86%), followed by swimming (41%).

Watkins Glen visitors were asked about their primary attraction to the park, and also other Finger Lakes attractions that they might have visited (Table 7). Camping (83%) and seeing the gorge (81%) were the primary attractions of Watkins Glen. A number of visitors also went to a Finger Lakes winery (48%) and to the Corning Glass Center/Museum (44%) while on their trip.

Visitor Expenditures

The objective of the visitor expenditure study was to estimate (1) the magnitude of revenues brought into each region by tourists that could be attributed to the presence of the park, and (2) the subsequent regional economic impact of these expenditures.

The preface to the expenditures question was phrased to obtain only those expenditures directly related to the park visit for people who lived locally and for tourists who would have visited the area even if the park were not open. For visitors who would have visited the area only if the park were open, all expenditures made in the region for any purpose were requested. Thus, the results indicate the impact of the presence of the park on expenditures within the region where each park is located.

Mean expenditures per party per day for visitors to Watkins Glen were $45.68 for campers and $75.48 for day users (Table 8). The largest expenditures for campers were auto fuel/repair, restaurant/bar, and groceries. Day users had additional large expenditures for lodging and souvenirs.

Table 7. Primary Attractions of Watkins Glen Park, and Finger Lakes Attractions, For Visitors to Watkins Glen State Park.

Primary Attractions of the Park	Percent
Camping	82.7
Seeing the Gorge	81.2
Attending Timespell	26.7
Picnicking	7.9
Swimming	6.0
Attending a Concert or Other Special Event	3.0
Finger Lakes Attractions Visited	
Finger Lakes Winery	47.7
Corning Glass Center/Museum	44.4
Other State Parks	26.7
Watkins Glen Racing	3.8
Others	11.3

Table 8. Mean Expenditures Per Party Per Day For Watkins Glen Park Visitors, 1984.

Expenditure Item	Campers	Day Users
Entrance Fee	$0.67	$2.19
Campsite Rental	5.70	1.03
Timespell Fee	1.75	0.65
Other Lodging	0.70	20.57
Restaurant/Bar	8.12	18.02
Groceries	7.10	2.43
Auto Fuel/Repair	8.60	10.77
Boating	0.18	1.97
Bait/Tackle	0.11	0.04
Souvenirs	3.78	6.76
Other Entertainment	2.30	4.96
Other Retail Purchases	3.77	2.29
	2.90	3.80
Total	$45.68	$75.48

Mean expenditures per party per day for visitors to Cumberland Bay were $57.94 for campers and $33.74 for day users (Table 9). The three largest expenditure items for both groups were restaurant/bar, groceries, and auto fuel/repair.

Mean expenditures per party per day for visitors to Saratoga Spa were $60.20 (Table 10). The single largest expenditure item was groceries, presumably related to the high percentage of people who went to the park to picnic.

Mean expenditures per party per day were generally lowest for visitors to Green Lakes, $36.35 for campers and $18.21 for day users (Table 11). The largest expenditure items for campers were groceries and campsite rental. For day users, the largest expenditures were groceries and the entrance fee.

To estimate total expenditures in an area attributable to the presence of the park, the mean expenditure for each item per person per day was multiplied by the estimated June through September attendance. The results for each park are presented in Tables 12 through 15. For example, expansions show that $13.2 million in direct expenditures in the Finger Lakes area could be attributed to the presence of Watkins Glen State Park during the 1984 summer season. Similarly, total direct expenditures attributable to Cumberland Bay State Park were $2.0 million, attributable to Saratoga Spa State Park were $1.0 million, and attributable to Green Lakes State Park were $3.6 million.

Trip Planning and Potential for Additional Expenditures

Exploratory analysis was conducted at Watkins Glen State Park to determine visitors' trip planning time frame, use of travel literature, and potential to spend additional time in the Finger Lakes area. A plurality of visitors (45%) planned their trip more than 4 weeks before leaving home (Table 16). The Finger Lakes area was the final destination of the majority of visitors (69%).

Table 9. Mean Expenditures Per Party Per Day for Cumberland Bay Park Visitors, 1984.

Expenditure Item	Campers	Day Users
Entrance Fee	$0.98	$3.49
Campsite Rental	6.66	0.71
Other Park Fees	0.75	0.91
Other Lodging	1.96	2.72
Restaurant/Bar	8.35	5.72
Groceries	11.54	4.77
Auto Fuel/Repair	8.34	6.28
Souvenirs	3.25	1.05
Other Entertainment	3.62	0.59
Other Retail Purchases	7.88	4.08
All Other	4.62	3.42
Total	$57.94	$33.74

Table 10. Mean Expenditures Per Party Per Day for Saratoga Spa Park Visitors, 1984.

Expenditure Item	Day Users
Entrance Fee	$4.16
Other Park Fees	2.34
Lodging	5.06
Restaurant/Food in Park	5.30
Other Restaurant/Bar	6.68
Groceries	14.33
Auto Fuel/Repair	5.51
Souvenirs	0.45
Performing Arts Center	2.42
Other Entertainment	3.81
Other Retail Purchases	4.56
All Other	5.58
Total	$60.20

Table 11. Mean Expenditures Per Party Per Day for Green Lakes Park Visitors, 1984.

Expenditure Item	Campers	Day Users
Entrance Fee	$ 0.77	$ 3.19
Campsite Rental	7.43	1.06
Other Park Fees	1.13	2.26
Other Lodging	0	0
Restaurant/Bar	4.62	2.78
Groceries	9.31	4.66
Auto Fuel/Repair	5.68	2.34
Boating	0.17	0.39
Bait/Tackle	0.15	0.09
Souvenirs	0.46	0.13
Other Entertainment	1.76	0.52
Other Retail Purchases	3.84	0.42
All Other	1.03	0.37
Total	$36.35	$18.21

Table 12. Total Estimated Expenditures of Visitors to the Watkins Glen Area Attributable to Watkins Glen State Park, June Through September, 1984, in Thousands of Dollars.

Expenditure Item	Campers	Day Users	Total
Entrance Fee	$ 8	$346	$354
Campsite Rental	63	207	270
Timespell Fee	18	162	180
Other Lodging	9	3,555	3,564
Restaurant/Bar	86	2,954	3,040
Groceries	72	384	456
Auto Fuel/Repair	94	1,889	1,983
Boating	1	312	313
Bait/Tackle	1	7	8
Souvenirs	32	1,018	1,050
Other Entertainment	23	890	913
Other Retail Purchases	37	470	507
All Other	30	535	565
Total	$474	$12,729	$13,203

Table 13. Total Estimated Expenditures of Visitors to the Cumberland Bay Area Attributable to Cumberland Bay State Park, June Through September, 1984, in Thousands of Dollars.

Expenditure Item	Campers	Day Users	Total
Entrance Fee	$ 16	$ 86	$ 102
Campsite Rental	96	17	113
Other Park Fees	13	31	44
Other Lodging	33	95	128
Restaurant/Bar	129	206	335
Groceries	174	160	334
Auto Fuel/Repair	129	246	375
Souvenirs	51	34	85
Other Entertainment	57	20	77
Other Retail Purchases	98	106	204
All Other	63	172	235
Total	$859	$1,173	$2,032

Table 14. Total Estimated Expenditures of Visitors to the Saratoga Spa Area Attributable to Saratoga Spa State Park, June Through September, 1984, in Thousands of Dollars.

Expenditure Item	Day Users
Entrance Fee	$ 50
Other Park Fees	42
Lodging	143
Restaurant/Food in Park	47
Other Restaurant/Bar	147
Groceries	91
Auto Fuel/Repair	89
Souvenirs	28
Performing Arts Center	75
Other Entertainment	137
Other Retail Purchases	76
All Other	81
Total	$1,006

Table 15. Total Estimated Expenditures of Visitors to the Syracuse Area Attributable to Green Lakes State Park, June Through September, 1984, in Thousands of Dollars.

Expenditure Item	Campers	Day Users	Total
Entrance Fee	$ 16	$ 564	$ 580
Campsite Rental	148	145	293
Other Park Fees	15	246	261
Other Lodging	0	0	0
Restaurant/Bar	112	423	535
Groceries	169	664	833
Auto Fuel/Repair	151	418	569
Boating	2	42	44
Bait/Tackle	2	11	13
Souvenirs	10	39	49
Other Entertainment	43	126	169
Other Retail Purchases	76	92	168
All Other	22	62	84
Total	$ 766	$2,832	$3,598

Table 16. Amount of Advance Planning Time for Visitors to Watkins Glen State Park.

Advance Planning Time	Percent
< 1 week	14.3
1-2 weeks	14.7
2-3 weeks	14.0
3-4 weeks	12.5
> 4 weeks	44.5

Almost half of the visitors (46%) had obtained travel literature about the Finger Lakes area before leaving home. Additional visitors received information in the Finger Lakes area, thus three-quarters of the visitors obtained travel information at some point. A source of information used by 44% of visitors was the "I Love New York Finger Lakes Travel Guide." Most visitors (68%) found the guide "very helpful" in locating attractions of interest, but less so for food and lodging (33%) and retail stores or shops (25%) (Table 17).

Watkins Glen visitors were asked whether they had the flexibility to spend an extra day in the region if they learned of additional attractions of interest during their visit. Fifty-four percent said they could spend an extra day, and 34% of those visitors actually did spend an extra day. Those "extra day" expenditures in aggregate added an estimated $1.5 million of revenue to the Finger Lakes area. Total "extra day" revenue of $2.8 million could have been generated if all people who could have spent an extra day had been successfully persuaded to do so.

Park-Related Expenditures

Information obtained from each state park indicates that total expenditures related to the operation of the park for fiscal 1984-85 ranged from $174,000 to $1,234,000. The breakdown on these expenditures is shown in Table 18. Personnel salaries account for the greatest proportion of expenditures at each park.

Regional Impacts of Park-Related Expenditures

The IMPLAN model, developed by the U.S. Forest Service, was used to produce regional models for each state park. Two types of multipliers were

Table 17. The Helpfulness of Various Topics in the "I Love New York Finger Lakes Guide" to Watkins Glen Visitors.

Topics in Travel Guide	Very Helpful	Somewhat Helpful	Not Helpful	Didn't Use
	Percent			
Attractions of interest	68.4	20.2	0.0	11.4
Food and lodging	33.0	26.6	6.4	33.9
Retail stores or shops	25.0	27.7	6.3	41.1

Table 18. Fiscal 1984-1985 Expenditures Related to the Operation of Each Park.

Item	Expenditure			
	Cumberland Bay	Green Lakes	Saratoga Spa	Watkins Glen
Personnel	$128,226	$330,372	$720,699	$245,331
Wholesale Trade	7,100	0	0	0
Retail Trade	16,500	39,785	116,000	38,566
Communications	2,730	3,529	3,800	2,494
Utilities	9,300	26,792	342,000	10,284
Water	5,000	3,993	26,000	16,579
Land Fill	5,000	40	26,000	2,000
Total	$173,856	$404,511	$1,234,499	$321,254

derived from this analysis--the Type I[1] and Type III value added multipliers.[2] Tables 19-22 show the multipliers for each expenditure item and the additional value generated by expenditures made in relation to the park. Thus, for example, Table 22 shows that between $4 and $6 million dollars of goods and services were generated by the visitor and park operations expenditures in relation to Green Lakes State Park. Note that no regional value added is attributed to visitor fees or the Saratoga Performing Arts Center fee. These fees revert to the State treasury or other outside sources and thus do not remain in the region. These fees, therefore, were not included in the calculation of the overall visitor expenditure multiplier.

Parks and Property Values

Proximity of property to state parks was found to be associated with a higher selling price of residential properties in two of the six communities examined, both villages with surrounding rural land. Of the 4 parks reported on in this study, only Watkins Glen had a significant effect on the selling price of nearby residential property. These property value impacts occur incidentally to the primary mission of state parks, which makes it difficult to generalize or predict situations where such effects can be expected. Further detailed examination of the results of this portion of the study can be found in Appendix B.

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[1]The Type I multiplier is sometimes referred to as a "simple" multiplier in that it takes into account only the direct and indirect changes resulting from an increase in output. See Miernyk (1965).

[2]The Type III multiplier produced by the IMPLAN model is actually their best estimate of a standard Type II multiplier (Brucker et al. 1986). It includes household expenditure data in its estimate and thus is a more realistic measure because it additionally takes into account the induced changes resulting from increased consumer spending.

Table 19. Type I and Type III Multipliers, and Regional Value Added Estimates f Watkins Glen State Park by Expenditure Item.[a]

Expenditure Item	Type I Multiplier	Regional Value Added Generated ($000's)	Type III Multiplier	Regional Va Added Genera ($000's)
Visitor Items				
Fees	0	0	0	0
Timespell Fees	1.20	216	1.59	286
Other Lodging	1.10	3,920	1.54	5,489
Restaurant/Bar	1.16	3,526	1.97	5,989
Groceries	1.04	474	1.59	725
Auto Fuel/Repair	1.04	2,062	1.59	3,153
Boating	1.20	376	1.59	498
Bait/Tackle	1.04	8	1.59	13
Souvenirs	1.04	1,092	1.59	1,009
Other Entertainment	1.20	1,096	1.59	1,452
Other Purchases	1.04	1,115	1.59	1,704
Subtotal		13,885		20,978
Park Operations Items				
Labor	b	245	b	245
Wholesale Trade	1.06	0	1.31	0
Retail Trade	1.04	40	1.59	61
Communications	1.03	3	1.21	3
Utilities	1.25	20	1.52	24
Water	1.25	21	1.52	25
Land Fill	1.25	2	1.52	3
Subtotal		331		361
TOTALS		$14,216		$21,339

[a]Multiplier estimates are for Schuyler County only. However, some of the pa visit-related expenditures occurred outside of Schuyler County.

[b]Not available.

Table 20. Type I and Type III Multipliers, and Regional Value Added Estimates for Cumberland Bay State Park by Expenditure Item.

Expenditure Item	Type I Multiplier	Regional Value Added Generated ($000's)	Type III Multiplier	Regional Value Added Generate ($000's)
Visitor Items				
Fees	0	0	0	0
Other Lodging	1.26	161	2.15	275
Restaurant/Bar	1.39	466	2.35	787
Groceries	1.11	371	1.70	568
Auto Fuel/Repair	1.11	416	1.70	637
Souvenirs	1.11	94	1.70	144
Other Entertainment	1.34	103	2.29	176
Other Purchases	1.11	487	1.70	746
Subtotal		2,098		3,333
Park Operations Items				
Labor	a	128	a	128
Wholesale Trade	1.14	8	1.56	11
Retail Trade	1.11	18	1.70	28
Communications	1.09	3	1.31	4
Utilities	1.32	12	1.49	14
Water	1.32	7	1.49	7
Land Fill	1.32	7	1.49	7
Subtotal		183		199
TOTALS		$2,281		$3,532

[a]Not available.

Table 21. Type I and Type III Multipliers, and Regional Value Added Estimates f Saratoga Spa State Park by Expenditure Item.

Expenditure Item	Type I Multiplier	Regional Value Added Generated ($000's)	Type III Multiplier	Regional Va Added Gener ($000's
Visitor Items				
Fees	0	0	0	0
Performing Arts Center Fee	0	0	0	0
Lodging	1.30	186	2.52	360
Restaurant/Bar	1.30	252	2.74	532
Groceries	1.11	101	2.12	193
Auto Fuel/Repair	1.11	99	2.12	189
Souvenirs	1.11	31	2.12	59
Other Entertainment	1.32	181	2.22	304
Other Purchases	1.11	174	2.12	333
Subtotal		1,024		1,970
Park Operations Items				
Labor	a	721	a	721
Wholesale Trade	1.12	0	1.72	0
Retail Trade	1.11	129	2.12	246
Communications	1.12	4	1.57	6
Utilities	1.21	414	1.48	506
Water	1.21	31	1.48	38
Land Fill	1.21	31	1.48	38
Subtotal		1,330		1,555
TOTALS		$2,354		$3,525

[a]Not available.

Table 22. Type I and Type III Multipliers, and Regional Value Added Estimates for Green Lakes State Park by Expenditure Item.

Expenditure Item	Type I Multiplier	Regional Value Added Generated ($000's)	Type III Multiplier	Regional Value Added Generatec ($000's)
Visitor Items				
Fees	0	0	0	0
Other Lodging	1.48	0	2.51	0
Restaurant/Bar	1.60	856	2.67	1,428
Groceries	1.18	983	1.89	1,574
Auto Fuel/Repair	1.18	671	1.89	1,075
Boating	1.49	66	2.68	118
Bait/Tackle	1.18	15	1.89	25
Souvenirs	1.18	58	1.89	93
Other Entertainment	1.49	252	2.68	453
Other Purchases	1.18	297	1.89	476
Subtotal		3,198		5,242
Park Operations Items				
Labor	a	330	a	330
Wholesale Trade	1.23	0	1.62	0
Retail Trade	1.18	47	1.89	75
Communications	1.13	4	1.37	5
Utilities	1.45	39	1.69	45
Water	1.45	6	1.69	7
Land Fill	1.45	<2	1.69	<1
Subtotal		426		462
TOTALS		$3,624		$5,704

[a]Not available.

Economic Values and the Budget Allocation Process

Are economic values like those estimated here useful in the budget process? Yes, economic values are potentially useful at several levels of the budgeting process. Elected and appointed public officials make final budget decisions. They are supported by specialized budget staff that tend to be trained in economics and accounting. Economic information moves to these decision makers by a formal process whereby fiscal guidelines go down the system and budget justifications go up. Information also travels through an informal network--some parts of it well organized and regularly involved in the exchange of information and support. Sometimes the informal networks are only mobilized for special projects or significant program changes.

Information moves through a system to some degree motivated by the stakes that people have in the outcome of a decision. Budget choices, for example, imply the potential for conflict. Conflict can be very healthy when it helps clarify public preferences for governmental services. Clarifying the stakes that various groups have in a decision should help avoid conflict due to misunderstanding of the facts. Also, information about economic stakes should make it easier to strike a bargain in the middle ground between contending parties. Economic values probably cannot be expected to have much effect when the conflicts involve deep-seated political or moral value differences.

One test of the usefulness of economic values data is whether program managers and others in the budget process use such information and say they would use more of it if it were available. This is only a partial test since we should expect program managers, at least, to be concerned with information that supports the programs they were hired to manage and promote. Information on the usefulness of economic values data was obtained from a group of key informants who were equally divided between direct park management and the overall budget process.

Information such as that estimated in this study is used in both the formal and informal budget allocation information system. Expectations develop over time as to what information is useful and legitimate in either system. Since there is little previous research in this area, the effort undertaken here is necessarily exploratory. To obtain some insights into the current acceptability of the data estimated in this study, a modest number of interviews and some mail questionnaires were employed. Each person interviewed was provided with an example of the types of information developed in this study.

To be sure that each person interviewed started with a familiar base, questions were asked on the usefulness of information on simple capacity and use changes. This information was expected to be basic to any budget proposal that involved more than maintaining routine operation and maintenance of a park (e.g., capital investments). Questions were posed about the usefulness of information concerning local impacts of construction, and operation and maintenance (O&M). Employment or income effects as opposed to gross expenditure effects of these public expenditures were distinguished based on the expectation that one may be perceived as preferable. The distinction was also made between the effect of expenditures by local park users and users that came from outside the area. Presumably local people would have spent some or most of their money locally even if the park had not been there, whereas expenditures made by non-local users represent more of a net addition to the local economy. Finally, questions were asked about the usefulness of estimates of the effect of parks on local public revenues such as sales tax and property tax. Respondents were also asked if they thought any of the above items were better suited to the formal or the informal information system.

User capacity change and expected use changes associated with a capital investment are not always available but were felt to be valuable by everyone interviewed. These would appear to be basic measures that should be put ahead of any of the others reviewed if there is to be any improvement of budget information.

Local impacts of construction and of operation and maintenance are usually felt to be valuable and to be available at least in general terms. Employment impacts of both are preferred to expenditure estimates, as are income or value added estimates. In discussions, respondents seemed aware that expenditure information did not communicate, nor was it as significant a measure of economic stake as either of the other two impact measures. Leakage of expenditures out of the community and multiplier effects reduce the usefulness of that measure.

Local impact of out-of-town user expenditures was considered less available but about equally useful as the other impact measures. The economic or export base argument for economic development is widely understood but infrequently is it accurately measured in any one case. The effect of a change in the economic base can easily be overstated or overlooked without a competent estimate. This includes exports such as sales to visitors which provide the base that supports the residential service activities in the community.

Sales taxes collected as a result of park-related expenditures, property value differences and property taxes collected based on that difference, were rarely encountered by those interviewed. They were expected to be valuable, especially the sales tax estimates. Local public officials have an obvious stake in the effect on local taxes. Other stake holders may express their concern through these officials. Accurate estimates of these stakes should improve their part of the network.

When asked to compare employment, expenditure, and income in terms of value in the budget process, there was a preference for income values, particularly among those who might be considered budget professionals and thus, were perhaps more exposed to economic concepts. However among general administrators, the three measures were not seen as greatly different in usefulness, as mentioned above, with employment, perhaps, enjoying a slight preference.

When asked to judge whether such measures would be more valuable in the formal or the informal information system, answers were about equally divided between those who chose one or the other, and those who said they would be equally useful in both. However, in discussion, illustrations of use almost always involved the informal system, e.g., speeches to chambers of commerce, requests for information from supporters, and contacts with local public officials.

When asked to list specific measures that would be more useful in the formal process, user capacity change was most frequently chosen from the list. Expected user change and sales tax were also frequently cited. Recall that part of sales tax collection goes to the state as well as local jurisdictions. However, as one administrator observed, "Mr. Revenue and Mr. Expenditure haven't met yet in the budget process." Local impact of construction, particularly employment, was also cited as important for the formal process, as was local impact of out-of-town visitor expenditures, particularly if expressed in terms of local income generated. Fewer votes were cast for local impact of O&M and property tax.

The informal process was seen as putting more value on a slightly different mix of measures. Impact of operations and maintenance, out-of-town users, and construction were cited in that order, although given the rather

small differences, it is not certain they are meaningful. However, capacity, use change, sales and property tax were not singled out as often.

There was some indication in the interviews that those who were more familiar with the types of economic estimates involved, or those who had them available in the past, tended to be more supportive of them. They were felt to be indicators of a modern approach to management and to project a sense of sophistication and competence.

SUMMARY

State parks provide many types of values to society. Only some of these are market values. The nonmarket values of parks include a variety of environmental, educational, cultural, recreational, and scenic or aesethetic values. Most visitors pay a park entrance fee, but yet it is clear that most visitors derive a value from the use of parks that far surpasses the entrance fee.

While these nonmarket values of parks may not be as visible to the general public, to the legislature, and to budget committees as they might be, it is not at all clear that a better awareness of these values would have a significant relationship to annual budget appropriations for parks. State and local officials are quite interested, on the other hand, in expenditures made in a local community that can be attributed to the presence of a state park. Such expenditures provide revenues to local businesses, making existing jobs more secure and creating the demand for new jobs. Furthermore, many of these expenditures include state and local sales taxes that result in increased revenues to local government and to the state. As a result of the greater interest in market values of parks, this study focused on those types of values.

The four parks utilized in this survey recorded heavy use totaling almost 150,000 camper days and over 1.5 million day-use visitor days. Mean expenditures per party per day for campers ranged from $36.35 at Green Lakes State Park to $57.94 at Cumberland Bay State Park. Mean expenditures per party per day for day users ranged from $18.21 at Green Lakes to $75.48 at Watkins Glen State Park. When these party expenditures are aggregated for all summer visitors, total visitor spending amounted to $13.2 million at Watkins Glen, $3.6 million at Green Lakes, $2.0 million at Cumberland Bay, and $1.0 million

at Saratoga Spa State Park. Annual expenditures for maintaining and operating the parks provided additional revenues to local communities, ranging from $174,000 at Cumberland Bay to $1.2 million at Saratoga Spa State Park.

Two types of multipliers were examined in the study to estimate total spending impacts. Using the more liberal or Type III multiplier, which the authors believe to be fully justified (a yet more liberal Type II multiplier was felt to be too liberal and was not used in the analysis), total regional value added from visitor spending directly attributable to the decision to visit the park, plus total value added attributable to park operations, amounted to $21.3 million at Watkins Glen, $5.7 million at Green Lakes, $3.5 million at Saratoga Spa, and $3.5 million at Cumberland Bay State Park.

Watkins Glen State Park differs to some degree from the other parks in that it is one of several very visible attractions in a travel region (The Finger Lakes) in which other key attractions are dispersed over several neighboring counties. For this reason, a brief study of travel patterns and revenue implications was undertaken at Watkins Glen. Over half of Watkins Glen visitors planned their trip over 3 weeks in advance. Almost half had obtained travel literature before leaving home. Those visitors who found sufficient attractions in the area to spend an extra day contributed about $1.5 million to the regional economy just by staying the extra day. The total potential revenue from all of those who had the capacity to stay an extra day was estimated at $2.8 million.

In some cases, state parks positively influence local property values. Such an influence was found in Watkins Glen. It was not found at Cumberland Bay, Green Lakes, or Saratoga Spa, but it was noted in an earlier study at Keewaydin State Park. State parks do not have as their function the increasing of adjoining property values. Where it occurs, however, it is a bonus for the

community in that it increases total property tax revenues for a given tax rate. Houses located from 0.2 miles to 8 miles away from Watkins Glen State Park had higher assessed values that were attributable to the presence of the Park. Starting at a radius of 8 miles from the Park and moving toward the Park, the assessed value of residential property increased by an average of about $50 per 100 feet of distance toward the Park, after other property and locational characteristics were controlled for statistically.

Those involved in the budget allocation process for parks find economic values information useful. Budget information could be improved by more careful development of physical and behavioral effects of budgeted changes--park capacity shifts and useage projections. Budget professionals and administrators are familiar with and use economic impact data. The superiority, conceptually and in terms of ease of communication, of employment or income effects rather than gross dollar transactions was mentioned by respondents. Multiplier results were found to be more meaningful than first round expenditures alone. Impacts of out-of-town user expenditures were less available but were seen to be as effective as the above estimates. Effects of parks on local tax collections, e.g., sales and property taxes, were much less familiar to those interviewed but were also expected to be useful to budget decision making. If more widely available, such information would be used in both the formal and informal information systems that support budget allocations.

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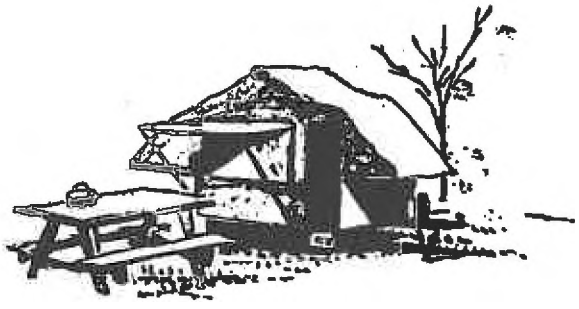
APPENDIX A:

Mail Questionnaire

(Almost identical questionnaires were sent to each state park. Watkins Glen visitors received additional questions on trip planning and literature.)

GREEN LAKES STATE PARK VISITOR SURVEY



GREEN LAKES STATE PARK
VISITORS SURVEY

Conducted by the

Department of Natural Resources

College of Agriculture and Life Sciences

Cornell University

This study is one of several cooperative efforts between Cornell University and the NYS Office of Parks, Recreation, and Historic Development. Its primary purpose is to estimate the expenditures that Green Lakes Park visitors make in the Greater Syracuse area of New York. Such estimates are needed as documentation of the positive impact of state parks on the local economy; these values are useful in helping state park administrators justify the annual budget for park operations.

Please complete the survey as soon as possible and return it in the enclosed self-addressed envelope. No postage is needed.

THANK YOU FOR YOUR COOPERATION.

GREEN LAKES STATE PARK
VISITORS SURVEY

1. Which of the following best describes your recent visit to Green Lakes State Park?

___ A trip or visit specifically to Green Lakes State Park.

___ A trip whose primary destination was the Greater Syracuse area, including visits to other attractions in addition to Green Lakes State Park.

___ A trip that included destinations outside the Greater Syracuse area.

2. On this trip, how many total days (or parts of days) did you spend:

	No. of days
a. Away from home?	___
b. In the Greater Syracuse area?	___
c. At Green Lakes State Park?	___

3. What primarily attracted you to Green Lakes State Park? (Check all that apply.)

___ Recreational opportunities (Which?)

___ Swimming
___ Boating
___ Fishing
___ Biking
___ Golf
___ Hiking
___ Other: _____

___ Convenience (e.g., a place to picnic or camp for the night)

___ Relaxful atmosphere or scenic beauty

___ Other: _____

YOUR ANSWERS TO THE FOLLOWING SEQUENCE WILL HELP US ESTIMATE THE ECONOMIC IMPACT OF PARK VISITORS ON THE GREATER SYRACUSE REGION.

4. Please estimate below any expenses made in the Greater Syracuse area as a result of your decision to visit Green Lakes State Park. Onondaga County residents and travelers who would have been in the area regardless of their decision to visit Green Lakes should list only those expenditures related to the park visit. Travelers who came to the region primarily to visit the park should list ALL expenditures made in the area.

Item	Estimated Expenditure	Item	Estimated Expenditure
Park entrance fee	$_____	Auto/fuel/repair	$_____
Campsite/cabin rental	$_____	Boating expenses	$_____
Other park fees (e.g., golf, boat launch)	$_____	Bait and tackle	$_____
Other lodging	$_____	Souvenirs	$_____
Restaurant and bar	$_____	Other entertainment purchases or fees	$_____
Groceries	$_____	Other retail purchases	$_____
		All other expenses	$_____

THE FOLLOWING INFORMATION IS USED ONLY FOR CLASSIFICATION PURPOSES AND IS NOT ASSOCIATED WITH YOUR NAME.

5. Please indicate below the number of individuals in each age group which were in your party that visited Green Lakes.

	Number
Children under 18 years of age	_____
Adults 18-35 years of age	_____
Adults 36-55 years of age	_____
Adults 56 years of age and older	_____

USE THE SPACE BELOW FOR ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT GREEN LAKES STATE PARK.

THANK YOU FOR YOUR COOPERATION.

TO RETURN THIS QUESTIONNAIRE, simply fold it and place it in the enclosed, self-addressed envelope; postage has been provided.

APPENDIX B:

"State Parks and Residential Property Values in New York"

by T. L. Brown and N. A. Connelly

Proceedings of the 1985 National Outdoor Recreation Trends Symposium II. 1985. Vol. 2. pp. 245-254.

STATE PARKS AND RESIDENTIAL PROPERTY VALUES IN NEW YORK[1]

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Abstract.--The effect of state parks on surrounding residential property taxes was examined for six communities in New York, ranging from metropolitan suburban to rural. Proximity of property to state parks was found to be associated with a higher selling price of residential properties in two of the six communities, both villages with surrounding rural land. These property value impacts occur incidentally to the primary mission of state parks, which makes it difficult to generalize or predict situations where such effects can be expected.

Additional keywords: Real estate, recreation, economic impacts.

Previous studies of the economic values associated with state parks indicate that the two largest such values are the local economic impacts resulting from (1) tourist visitation and their associated expenditures (Brown et al. 1983; Dean et al. 1978) and (2) state expenditures (i.e., wages paid to local residents employed, purchase of other local goods and supplies) made in conjunction with maintaining and operating parks. A third type of local economic value potentially associated with state parks is their effect on surrounding property values. The literature on relationships between state parks and surrounding property values (primarily residential property ranging from suburban to rural) is sparse.

Most previous studies that have examined relationships between parks and property values have done so with city or neighborhood parks in an urban setting. Weicher and Zerbst (1973) found positive externalities generated for Columbus, Ohio residential properties where the house faced a neighborhood park, no externality for properties where houses backed onto the park, and negative externalities for properties adjacent to one park that faced heavily used recreational facilities. Separate dummy variables were used to reflect the three property location categories relative to the parks.

Hagerty et al. (1982) used a similar hedonic pricing technique to measure the component of housing prices attributable to proximity to city parks in Worchester, MA. However, they included a distance function from the property to the parks, and were therefore able to derive an aggregate estimate of incremental residential property value attributable to the parks. Using principal components regression, the authors found that a house located 20 feet from the parks studied sold for $2,675 more than for a house 2,000 feet from the park, with 80 percent of the externality being lost after a distance

[1]This work was funded jointly by Cooperative Regional Project NE-137 through U.S. Hatch Act Funds, by the U.S. Forest Service, and by the New York State Office of Parks and Recreation.

of 500 feet from the park. Similarly, Correll et al. (1978) found an inverse relationship between the price of residential property and distance of the property from greenbelts in Boulder, CO, at the linear rate of $4.20 per foot, extending for 3,200 feet.

State parks are typically established to meet recreational and other needs on a statewide or regional basis. Many states also use their state parks as an integral part of tourism promotion. Thus, state parks are not typically established and operated primarily to provide benefits to local residents. Nevertheless, in some situations, notable benefits are provided to local residents. In two other studies of local impacts of state parks (Dean et al. 1978; Cohee et al. 1976) the effects of parks on property values was not investigated, although Cohee et al. did examine the negative value components associated with the values of production and local taxes forgone as a result of the creation of state parks in Kentucky.

Because state parks are not established primarily to provide local recreational benefits, it is likely that some parks will provide such benefits to the extent that they are reflected in property values, while other parks will not. A report produced for the Canadian Federal/Provincial Parks Conference (Canadian Outdoor Recreation Research Committee 1975) indicated that land values increased dramatically in the neighborhood of one park and historic settlement, while they showed no impact in a second area. This report concluded that the factors contributing to this effect have not been well explored, and that further investigation is needed.

Although one such further study can not hope to provide comprehensive answers, this New York study was initiated in part to provide further insight into those situations in which state parks enhance local land values, and those in which they do not. Six state parks were examined, five of which are located in proximity to villages or cities, and the sixth in proximity to two seasonal settlements.

THE STUDY AREAS

The state parks and associated communities studied are described in brief below, in order of population, from metropolitan suburban to rural. The locations are also shown in Figure 1.

Green Lakes State Park is in the suburban Syracuse area (1980 urbanized population of 180,013). A park of 1,103 acres in a rolling topography of woods and lakes, the park offers ample opportunities for hiking, biking, picnicking, fishing, camping, swimming, and golf.

Saratoga Spa State Park is located approximately 30 miles north of Albany, near the city limits of Saratoga Springs (1980 urbanized population of 13,066). The park complex, which covers about 2,000 acres, contains bathing spas, a performing arts center, picnicking, and golf facilities.

Cumberland Bay State Park, in northeastern New York, lies adjacent to the city of Plattsburgh (1980 urbanized population of 11,559). The park contains 350 acres on Lake Champlain, and provides swimming, fishing, camping and picnicking opportunities.

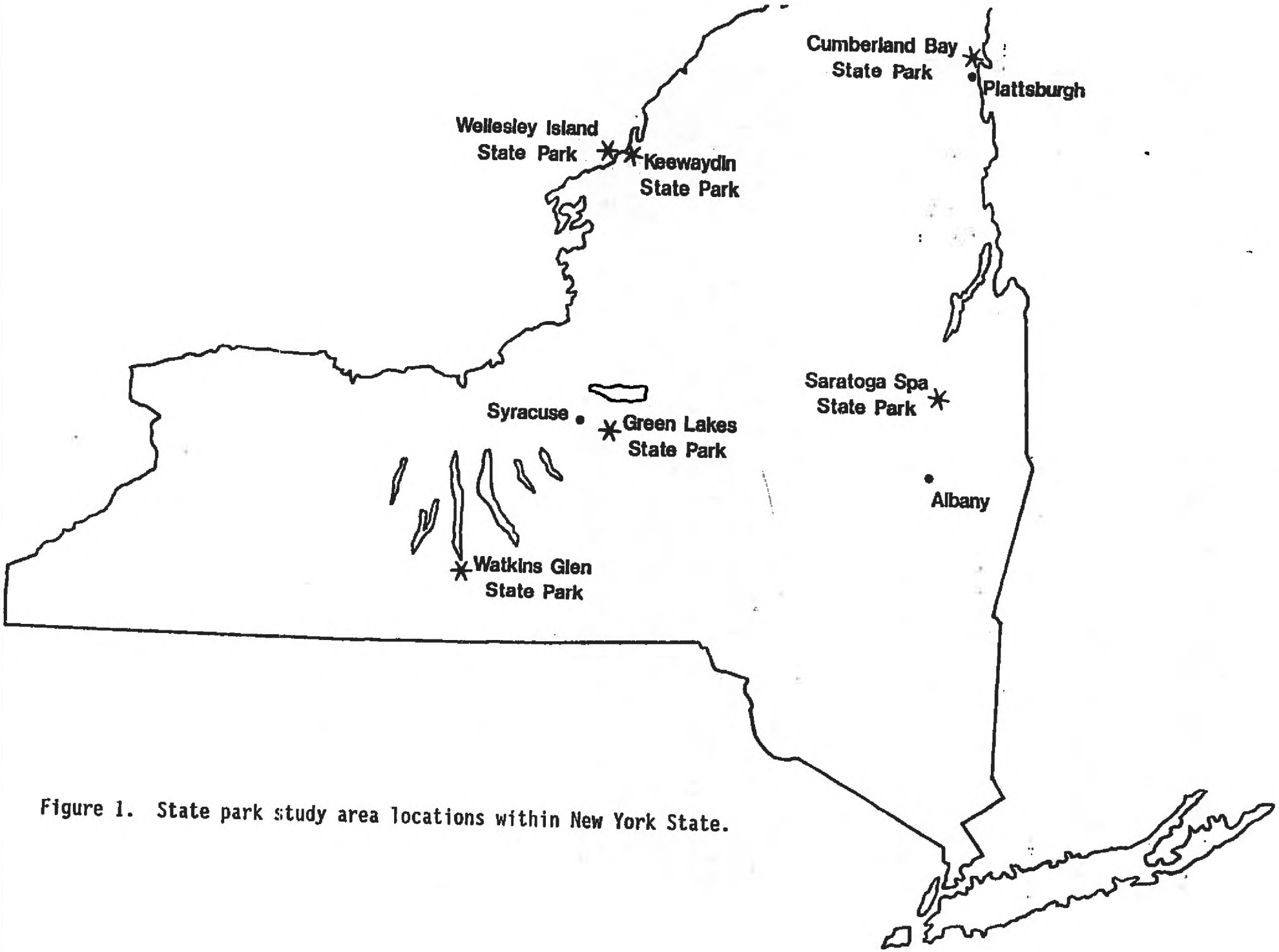

Figure 1. State park study area locations within New York State.

Watkins Glen State Park is entered from the center of the village of Watkins Glen (1980 population of 2,440), in New York's Finger Lakes region. The park of 668 acres of spectacular gorges offers hiking, camping, swimming, and picnicking opportunities.

Keewaydin State Park, in the Thousand Islands region, lies adjacent to the village of Alexandria Bay (1980 population of 1,265). This 180 acre park provides a marina and access to the St. Lawrence River for any form of aquatic recreation. The park also has picnicking facilities.

Wellesley Island State Park, also in the Thousand Islands region, is the only park examined that is not adjacent to a populated area. This large recreation complex of 2,636 acres lies on a large island in the St. Lawrence River that also contains two settlements of seasonal residences. The park offers a full range of camping, picnicking, golf, swimming, and boating facilities.

METHODS

Many counties in New York keep a computerized file of residential property sales according to a standardized format. This file includes the sale price as well as the assessed value, and a number of characteristics of the property and residential dwelling (e.g., number of bedrooms and bathrooms, type of heating). These tapes were obtained for counties or adjacent municipalities in which the parks of interest were located. By using tax maps and topographic (USGS) maps, the distance from each park of properties having sold in recent years (1974-1982) was estimated to the nearest 100 feet for all such properties lying within 10 miles of a park. The distance variable was then added to other property and housing data as an independent variable. After examining scatterplots of relationships between sale price (converted to 1982 constant dollars) and distance to the park, multiple regression analysis was performed for distance intervals where there appeared to be a possible relationship between sales price and distance of the property from the park.

RESULTS AND INTERPRETATION

Green Lakes State Park

Data were examined for 60 residential property sales ranging from distances of 1.4 miles to 4.7 miles from the nearest park entrance. Distance to the park was not significantly correlated with sales price ($r=-.05$), and did not enter the regression model at a statistically significant level. For the 60 properties, the three statistically significant independent variables of square feet, rooms, and number of baths produced a model having an r^2 of 0.74.

An examination of the data suggested the possible influence of proximity of the park and selling price for a distance of up to two miles. However, only nine property sales were within that distance. These nine properties showed a high negative correlation between distance and selling price ($r=-.77$; significant at $P=.02$). However, when the housing characteristics listed above were controlled for, the significant negative correlation was removed.

Study findings were discussed with staff of the Central New York Regional Planning and Development Board, and several hypothetical explanations were developed for the lack of a distance-selling price relationship. First, the land immediately surrounding Green Lakes is in mixed rural land uses, such that intense development in the immediate proximity of the Park is lacking. Second, the 60 properties studied are primarily suburban, with half-acre lots and a mean adjusted 1982 selling price of $72,600. Many of the homes in these suburban areas have backyard pools or other amenities such that a closer location to a park is not sufficiently important to affect the selling price over and above acreage and housing characteristics.

Saratoga Spa State Park

As was true of Green Lakes, the proximity of properties to Saratoga Spa State Park did not significantly affect their selling price. The best explanatory model, which incorporated acreage, age, square feet, and number of bathrooms as statistically significant variables, produced an r square of .72. Distance from the park and selling price were not significantly correlated for any distance segment. A total of 84 properties were examined at distances of from 2,000 feet to 7.5 miles from the park. These properties averaged one acre in size and a 1982 adjusted selling price of $63,000.

Saratoga Spa State Park is also surrounded by lands that are primarily rural. Thus, the residences closest to the park have large lots; which lessens the demand of residents for being near a park. The northern end of the park, nearest to Saratoga Springs, is the area where the hotel and performing arts center is located. This area is congested at times of major events, which may well negate being located near it. Furthermore, there are several neighborhood parks and playgrounds in Saratoga Springs where local residents can enjoy some of the activities they would otherwise use the park for.

Cumberland Bay State Park

Cumberland Bay State Park, which is located about a mile northeast of Plattsburgh, lies between the city and Cumberland Head, a peninsula of about 2.5 miles that extends south into Lake Champlain. An analysis of all property sales ranging from .25 mile to 5.5 miles from the Park showed no influence of proximity to the Park to the selling price of 68 residences. A further separate examination of the 38 properties on Cumberland Head showed a positive relationship between selling price and distance from the park:

$$Y = -14,157 + 30F + 103D + 12,525W + 25,449P$$

where Y = selling price in dollars
F = number of square feet
D = distance from the park in hundreds of feet
W = a dummy variable reflecting waterfront property
P = a dummy variable reflecting permanent residences

This model has an r square of .84. However, it would be erroneous to conclude that the lower property values nearer the park are attributable to the park. Toward the southern end of Cumberland Head (most distant from the park), the aesthetics (lake overlooks, views) are considerably more pleasing than on the

northern end. Thus, we believe that the distance variable reflects distance from the southern end of the peninsula rather than distance from the state park.

Property values in the northeastern part of Plattsburgh, nearest the park, are probably not enhanced by the park because residents use a municipal beach and other park facilities much more than the state park. Much of the park use is by Canadians. Furthermore, the park does not immediately border the city.

Watkins Glen State Park

The Village of Watkins Glen, which lies at the southern tip of Seneca Lake, is sufficiently small that it has a very limited number of residences that could be classified as suburban. Most properties outside the village are rural in character.

A total of 31 residential properties were examined, 20 of which were within the village limits. Distances between the properties and the state park ranged from .2 mile to almost 8 miles. Fifteen residences were on the village water line; the others had well water, except for one residence that had no source of water. Six of the rural properties had acreage ranging from 5 to 82 acres. The mean adjusted 1982 sales price of the 31 residences was $44,924.

Although the simple correlation between selling price and distance to the park was low (.143), when the number of stories and square feet of residences were controlled for along with the type of water supply, distance became significant (partial correlation of -.210) and entered the regression equation. The best equation found was:

$$Y = 39{,}186 - 18{,}239S - 20F - 50D + 17{,}374P$$

where Y = selling price
S = number of stories
F = square feet
D = distance
P = dummy variable indicating private water supply

Each of the independent variables and the model as a whole have F statistics and standard errors significant at $p=.05$. The number of stories had a negative coefficient in the model because the variable was closely correlated with age of the structure ($r=.81$). The model had an r^2 of .73.

The model suggests that on average, for the distance of residences in the model (.2 to approximately 8 miles) that for each 100 feet closer a residence is to the park, its selling price increased by about $50. The primary alternative hypothesis examined was that property within the village limits had a higher selling price, other factors held constant, than property outside the village limits. Such a dummy variable proved not to be statistically significant, however. It is possible that residential prices increase outside the village due to proximity to the village limits, for shopping and work convenience and a variety of other reasons. However, the state park is very much

part of the character of Watkins Glen, it does receive local use, and because the model showed distance to be correlated with selling price both inside and outside the village, the model is accepted as reflecting a positive influence of the park on surrounding property values.

Keewaydin State Park

A similar regression model for Keewaydin State Park also showed distance to the park to be significantly correlated with the sales price:

$$Y = 45{,}661 + 6{,}604Ac - 324Ag + 15{,}538S + 11F - 31{,}379P - 72D$$

where Y = selling price
Ac = acres
Ag = age
S = number of stories
F = square feet
P = a dummy variable reflecting permanent residences
D = distance from the park in hundreds of feet

This model has an r^2 of .613, and all independent variables have F statistics that are significant at P=.05.

This park receives some local use for picnicking, but its primary value to local residents is believed to be its marina and boat launching area. These facilities provide residents access to the St. Lawrence River for fishing and other water recreation activities.

Wellesley Island State Park

The best regression model for Wellesley Island incorporated the independent variables of public water supply, acreage, square feet, degree of central heating, and whether or not the property is on the waterfront. This model was statistically significant at P=.03, and explained 54% of the variance in selling price. Distance to the park was not significant.

Most of the properties on the island are waterfront properties, and most have access to the St. Lawrence River. The primary facility provided by the park of interest to local residents is the golf course. Apparently proximity to the golf course was not a sufficient amenity that it affected the selling price of residences. Most seasonal properties on the island are within two miles of the golf course.

ESTIMATING THE ECONOMIC IMPACTS OF PROXIMITY OF RESIDENCE TO A STATE PARK

Watkins Glen and Keewaydin State Parks were found to affect the selling price of surrounding residential properties. The impact of the park on local property values will be illustrated for Keewaydin State Park. In expanding the distance factor of $72 per 100 feet to arrive at a total estimate of incremental property values attributable to proximity to Keewaydin State Park, the assumption was made that the distance factor also applies to other properties not sold. For properties which have not recently sold, no sale price was available, and assessed value was used instead. The assumption was then made

that the influence of distance to the park on assessed valuation is the same as upon sales price for properties sold. That is,

$$\frac{\text{Total assessed value}}{\text{Total sales value}} = \frac{\text{Total enhanced assessed value}}{\text{Total enhances sales value}}$$

The nearest sale property to Keewaydin was 4,600 feet from the park entrance. Because we had no data to confirm that the linear distance/valuation factor holds for distances closer to the park than this, closer properties were not included in the estimate of incremental property values. This was equivalent to assuming that positive benefits of properties located closer to the park are cancelled by negative values of traffic, noise, and other factors.

For the Town of Orleans, Town of Alexandria Bay, and the Village of Alexandria Bay, the ratio of the $72 per hundred feet incremental property value to average sales price was multiplied by the average assessed value to arrive at the average enhanced value due to park proximity. Data used in the calculations are shown in Table 1.

Table 1.--Average sales price, assessed value, and incremental values due to proximity to Keewaydin State Park.

Item	Jurisdiction		
	Town of Alexandria Bay	Village of Alexandria Bay	Town of Orleans
Average sale price	$ 44,272	$ 41,257	$ 40,296
Average assessed value	$ 4,369	$ 9,583	$ 18,746
Incremental sales value per 100 feet	-$72.06	-$72.06	-$72.06
Incremental enhanced value per 100 feet	-$ 7.11	-$16.74	-$33.52
Average distance of properties up to 45,100 feet from park	21,150	4,600	26,300
Average distance of properties from 45,100-foot extremity	23,950	40,500	18,800
Number of properties	557	600	476
Average enhanced assessed value	$ 1,703	$ 6,780	$ 6,302
Total enhanced assessed value	$948,482	$4,067,820	$2,999,638

The negative enhancement value associated with increasing distance from the park was converted to a positive value by asserting that for every 100 feet inward toward the park entrance from the 45,100-foot perimeter beyond which the model no longer holds, the incremental enhanced value increases by the positive counterpart of the figure shown in Table 1. This value times the average distance of properties from the 45,100-foot perimeter, per 100 feet, yields the average enhanced assessed value. This figure times the number of properties affected yields the total enhanced assessed value, the bottom line of Table 1.

Given the total enhanced assessed value and various property tax rates, the value of Keewaydin State Park to the Towns of Alexandria Bay and Orleans, and the Village of Alexandria Bay were estimated. Table 2 shows incremental 1982 taxes of $117,981 from the Town of Alexandria Bay, $633,237 from the Village of Alexandria Bay, and $70,911 from the Town of Orleans. These total $822,129 in incremental taxes, or in local annual value to the affected municipalities derived from the presence of Keewaydin State Park.

Table 2.--Taxes paid by residents near Keewaydin State Park attributable to incremental park values.

Tax	Jurisdiction		
	Town of Alexandria Bay	Village of Alexandria Bay	Town of Orleans
Town/County	$ 40,633	$233,167	$22,407
Village	0	68,339	0
Fire/Light	1,337	5,736	7,349
School	76,011	325,995	41,155
Total	$117,981	$633,237	$70,911

SUMMARY AND IMPLICATIONS

State parks are typically established and maintained with the dual objectives of protecting an area of scenic, scientific, or historic importance and providing convenience and recreational facilities that will allow enjoyment of residents of the state and tourists. The primary in-state market for state park visitors is typically residents of metropolitan areas lying within a two-hour drive of the park. Many such parks are located in rural areas. Some, however, are located in close proximity to villages or cities. Particularly in such cases, the question arises as to how these parks affect local communities. Other studies (e.g., Brown et al. 1983; Dean et al. 1978) show the local economic impacts of visitor spending and state park operations. This study suggests that residential property values may also be impacted, and documents two cases out of six examined.

The impact of state parks on surrounding residential properties is in many ways incidental, and reflects benefits of those parks beyond the primary intended benefits for which the parks were created and are currently operated. As a result, it is difficult if not impossible to characterize where such benefits will occur. Most situations previously reported in which property values were impacted by parks were in urban areas. The more urban of the New York parks examined showed no property value effects, but such effects were found in and surrounding two villages. Thus, we would hypothesize that property value effects can occur anywhere that a state park provides notable local benefits. Those benefits can range from immediate open space relief in a highly urban area, which might effect only immediately adjacent properties, to ready access to scenic or recreational resources, which could impact the value of properties over a radius of several miles. The degree of local use of a park is an indicator of the likelihood that these values exist, although situations may occur in which the values are attributable to the open space, scenery, or vistas provided more so than to recreational opportunities.

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